

**BRIEF SUMMARY OF THE INVENTION**

Page 4, after line 7, insert as a separate paragraph:

**BRIEF DESCRIPTION OF THE DRAWINGS**; and

after line 15, insert as a separate paragraph:

**DETAILED DESCRIPTION OF EXEMPLARY**

**EMBODIMENTS OF THE INVENTION**

Page 9, delete line 1 in its entirety and insert --What is Claimed

is:--.

**IN THE CLAIMS:**

Please amend the claims as follows.

2. (Amended) A method for assessing the characteristic response of a medium to an excitation transient of predetermined duration which causes the medium to emit a series of signals over a period of time which is long relative to the duration of the excitation transient, wherein the signals are detected, the duration of each interval between successive signals is measured, and a relationship relating the interval between the excitation transient and the emission of each signal to the interval between each signal and the preceding signal in the series is derived to represent the characteristic response;

wherein the interval between the excitation transient and the emission of each signal is plotted against the interval between each signal and the preceding signal in the series, a curve is fitted to the plot, the position of a minimum value

35  
cont

of the interval between successive signals as represented by the curve is determined, and the interval between the excitation transient and the minimum is determined to provide a measure of the characteristic response of the medium.

36

9. (Twice Amended) A method for assessing the characteristic response of a medium to an excitation transient of predetermined duration which causes the medium to emit a series of signals over a period of time which is long relative to the duration of the excitation transient, wherein the signals are detected, the duration of each interval between successive signals is measured, and a relationship relating the interval between the excitation transient and the emission of each signal to the interval between each signal and the preceding signal in the series is derived to represent the characteristic response;

wherein excitation is delivered to a plurality of samples of the medium from a single source, and signals from each sample are received by a single detector.

Please add the following new claim.

37

--18. (New) A method for assessing the characteristic response of a medium to an excitation transient of predetermined duration which causes the medium to emit a series of photons over a period of time which is long relative to the duration of the excitation transient, wherein the photons are detected, the duration of each interval between successive photons is measured,